

VERSION WITH MARKING TO SHOW CHANGES MADE

1. (Original) An asphalt-based roofing material comprising:

a mat saturated and coated with an asphalt-based coating, the coating including a top portion covering the top of the mat, a mat portion saturating the mat, and a bottom portion covering the bottom of the mat;

wherein the top portion of the coating comprises a mixture of asphalt and rock particles selected from the group consisting of igneous rock particles, metamorphic rock particles, and mixtures thereof; and

wherein the mat portion of the coating comprises a mixture of asphalt and filler, the filler containing no more than about 10% rock particles selected from the group consisting of igneous rock particles, metamorphic rock particles, and mixtures thereof, by weight of the filler.

2. (Original) A roofing material according to claim 1 wherein the filler in the mat portion of the coating comprises rock particles.

3. (Original) A roofing material according to claim 2 wherein the rock particles comprise sedimentary rock particles.

4. (Original) A roofing material according to claim 1 wherein the filler in the top portion of the coating comprises trap rock particles, and the filler in the mat portion of the coating comprises limestone particles.

5. (Original) A roofing material according to claim 1 wherein the bottom portion of the coating comprises a mixture of asphalt and filler, the filler containing no more than about 10% rock particles selected from the group consisting of igneous rock particles, metamorphic rock particles, and mixtures thereof, by weight of the filler.

6. (Original) An asphalt-based roofing material comprising:

a mat saturated and coated with an asphalt-based coating, the coating including a top portion covering the top of the mat, a mat portion saturating the mat, and a bottom portion covering the bottom of the mat;

wherein the top portion of the coating meets or exceeds a pliability standard described in CSA Standard A123.5-98; and

wherein the bottom portion of the coating does not meet the pliability standard.

7. (Original) A roofing material according to claim 6 wherein the top portion of the coating is made with a ferric treated asphalt.

8. (Original) An asphalt-based roofing material comprising:
a mat saturated and coated with an asphalt-based coating, the coating including a top portion covering the top of the mat, a mat portion saturating the mat, and a bottom portion covering the bottom of the mat, the top portion of the coating including a top surface layer;
wherein at least the top surface layer of the top portion passes a weathering performance test as measured by at least 60 cycles-to-failure using ASTM Method D4799;
and

wherein the bottom portion of the coating does not pass the weathering performance test.

9. (Original) A roofing material according to claim 8 wherein the top surface layer is at least about 0.023 inch (0.058 cm) thick.

10. (Original) A roofing material according to claim 8 wherein the entire top portion of the coating passes the weathering performance test.

11. (Original) An asphalt-based roofing material comprising:
a mat saturated and coated with an asphalt-based coating, the coating including a top portion covering the top of the mat, a mat portion saturating the mat, and a bottom portion covering the bottom of the mat, the top portion of the coating including a top surface layer;
wherein at least the top surface layer of the top portion has a solar reflectance of at least 0.7 when tested by ASTM Method E903; and
wherein the bottom portion of the coating has a solar reflectance of less than 0.7.

12. (Original) A laminated asphalt-based roofing material comprising:
an underlay comprising a mat saturated and coated with an asphalt-based coating, the coating including a top portion covering the top of the mat, a mat portion saturating the mat, and a bottom portion covering the bottom of the mat, the top portion of the coating including a top surface layer; and

an overlay covering a portion of the top of the underlay, and leaving a portion of the underlay uncovered, the overlay comprising a layer of an asphalt-based coating, the coating layer including a top surface layer;

wherein at least the top surface layer of the overlay, and at least the top surface layer of the underlay on the uncovered portion of the underlay, are made with an asphalt having viscoelastic properties effective to prevent the coating from sticking to a coating of an adjacent shingle when the shingles are stacked face to face in a bundle and stored at a temperature exceeding 90°F (32°C); and

wherein the bottom portion of the underlay coating is made with an asphalt not having the viscoelastic properties.

13. (Original) A laminated roofing material according to claim 12 wherein the top surface layer of the overlay, and the top surface layer of the underlay on the uncovered portion of the underlay, are at least about 0.023 inch (0.058 cm) thick.

14. (Original) A laminated roofing material according to claim 12 wherein the entire top portion of the coating on the uncovered portion of the underlay is made with an asphalt having the viscoelastic properties.

15. (Original) A laminated roofing material according to claim 12 wherein the overlay further comprises a mat saturated and coated with the layer of asphalt-based coating, the coating including a top portion covering the top of the mat, a mat portion saturating the mat, and a bottom portion covering the bottom of the mat, and wherein the entire top portion of the coating is made with an asphalt having the viscoelastic properties, and the bottom portion of the coating is made with an asphalt not having the viscoelastic properties.

16. (Original) An asphalt-based roofing material comprising:
a mat saturated and coated with an asphalt-based coating, the coating including a top portion covering the top of the mat, a mat portion saturating the mat, and a bottom portion covering the bottom of the mat, the top portion of the coating including a top surface layer, and a layer of granules embedded in the top surface layer;

wherein at least the top surface layer of the top portion has an increased adhesion defined by a granule loss of less than 0.8 grams when the roofing material is soaked in water for seven days and then tested by ASTM Method D4977; and

wherein the bottom portion of the coating does not have the increased adhesion.

17. (Original) An asphalt-based roofing material comprising:
a mat saturated and coated with an asphalt-based coating, the coating including a top portion covering the top of the mat, a mat portion saturating the mat, and a bottom portion covering the bottom of the mat;

wherein the bottom portion of the coating has an increased toughness compared to the top portion of the coating, such that the roofing material has an increased impact resistance of at least one UL 2218 class compared to the same roofing material having a bottom portion of the coating with the same toughness as the top portion.

18. (Original) A roofing material according to claim 17 wherein the roofing material has an increased impact resistance of at least two UL 2218 classes.

19. (Original) A roofing material according to claim 17 wherein the roofing material meets a UL 2218 Class 4 impact resistance standard.

20. (Original) An asphalt-based roofing material comprising:
a mat saturated and coated with an asphalt-based coating, the coating including a top portion covering the top of the mat, a mat portion saturating the mat, and a bottom portion covering the bottom of the mat, the top portion of the coating including a top surface layer, and a layer of granules embedded in the top surface layer;

wherein at least the top surface layer of the top portion has an increased adhesion defined by a granule loss of less than 0.8 grams when the roofing material is soaked in water for seven days and then tested by ASTM Method D4977; and

wherein the roofing material further comprises a web fused to the bottom portion of the coating, the roofing material having an increased impact resistance of at least one UL 2218 class compared to the same roofing material without the web.

21. (Withdrawn)

22. (Withdrawn)

23. (Withdrawn)

24. (Withdrawn)

25. (Withdrawn)

26. (Withdrawn)

27. (Withdrawn)

28. (Withdrawn)

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38. (Withdrawn)

39. (Withdrawn)

40. (Withdrawn)

41 (Withdrawn)

42. (Withdrawn)

43. (Withdrawn)

44. (Withdrawn)

45. (Withdrawn)

46. (Withdrawn)

47. (Withdrawn)

48. (Withdrawn)

49. (Withdrawn)

50. (Withdrawn)

51. (Withdrawn)

52. (Withdrawn)

53. (New) An asphalt-based roofing material comprising:

a mat saturated and coated with an asphalt-based coating, the coating including a top portion covering the top of the mat having first properties, a mat portion saturating the mat having second properties, and a bottom portion covering the bottom of the mat having third properties, wherein one of the second properties and the third properties is dissimilar to the first properties;

wherein the coatings comprises one of the group consisting of:

(A) the top portion comprising a mixture of asphalt and rock particles selected from the group consisting of igneous rock particles, metamorphic rock particles, and mixtures thereof; and the mat portion of the coating comprises a mixture of asphalt and filler, the filler containing no more than about 10% rock particles selected from the group consisting of

igneous rock particles, metamorphic rock particles, and mixtures thereof, by weight of the filler; and

(B) the top portion comprising a first coating meeting or exceeding a pliability standard described in CSA Standard A123.5-98; and the bottom portion of the coating does not meet the pliability standard; and

(C) the top portion comprising a first coating having a top surface layer of the top portion passing a weathering performance test as measured by at least 60 cycles-to-failure using ASTM Method D4799; and the bottom portion of the coating does not pass the weathering performance test; and

(D) the top portion comprising a first coating having a top surface layer of the top portion having a solar reflectance of at least 0.7 when tested by ASTM Method E903; and wherein the bottom portion of the coating has a solar reflectance of less than 0.7; and

(E) the top portion comprising a first coating for an overlay of a shingle having a top surface layer of the top portion having viscoelastic properties effective to prevent the coating from sticking to a coating of an adjacent shingle when the shingles are stacked face to face in a bundle and stored at a temperature exceeding 90°F (32°C); and wherein the bottom portion of an underlay coating is made with an asphalt not having the viscoelastic properties; and

(F) the top portion comprising a first coating having a top surface layer of the top portion having an increased adhesion defined by a granule loss of less than 0.8 grams when the roofing material is soaked in water for seven days and then tested by ASTM Method D4977; and wherein the bottom portion of the coating does not have the increased adhesion; and

(G) the top portion comprising a first coating having a top portion having a toughness of a first UL 2218 class; and wherein the bottom portion of the coating has an increased toughness compared to the top portion of the coating, such that the roofing material has an increased impact resistance of at least one UL 2218 class compared to the same roofing material having a bottom portion of the coating with the same toughness as the top portion; and

(H) the top portion comprising a first coating having a top portion having an increased adhesion defined by a granule loss of less than 0.8 grams when the roofing material is soaked in water for seven days and then tested by ASTM Method D4977; and wherein the roofing material further comprises a web fused to the bottom portion of the coating, the roofing

material having an increased impact resistance of at least one UL 2218 class compared to the same roofing material without the web.

54. (New) A roofing material according to claim 53 wherein when the coating comprises (A), the bottom portion of the coating comprises a mixture of asphalt and filler, the filler containing no more than about 10% rock particles selected from the group consisting of igneous rock particles, metamorphic rock particles, and mixtures thereof, by weight of the filler.

55. (New) A roofing material according to claim 53 wherein when the coating comprises (C), the entire top portion of the coating passes the weathering performance test.

56. (New) A roofing material according to claim 53 wherein when the coating comprises (H), the roofing material has an increased impact resistance of at least two UL 2218 classes.

57. (New) A roofing material according to claim 56 wherein when the coating comprises (H), the roofing material meets a UL 2218 Class 4 impact resistance standard.
